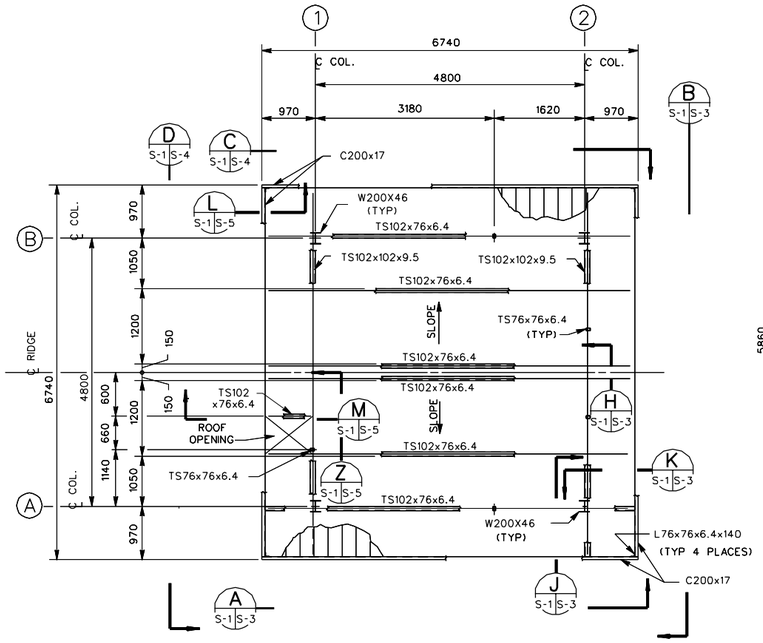
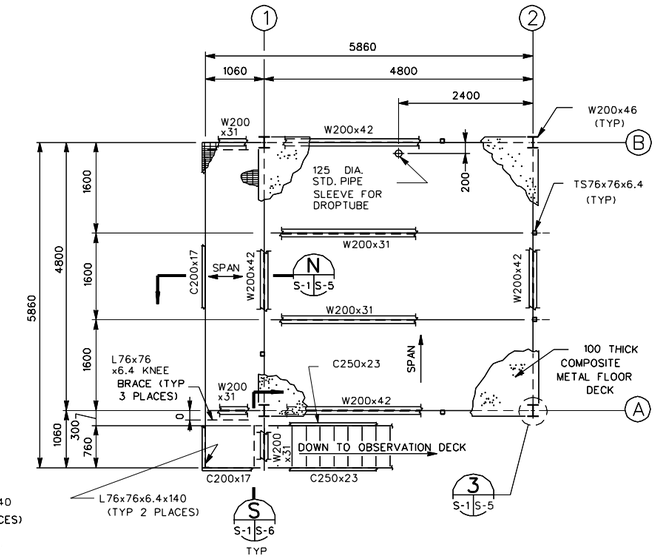


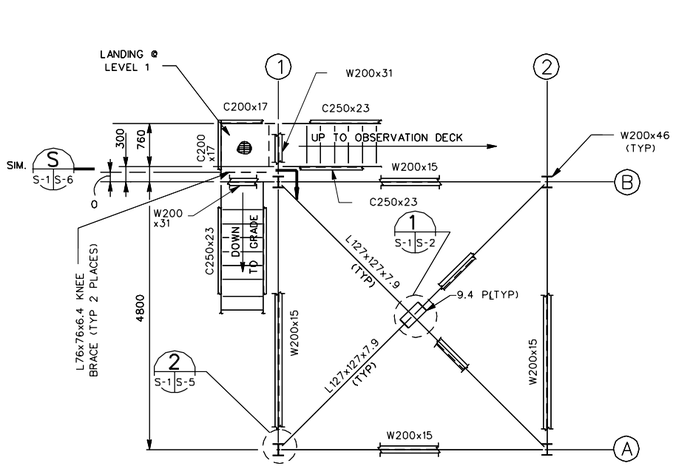
ROOF FRAMING PLAN

SCALE : N.T.S.



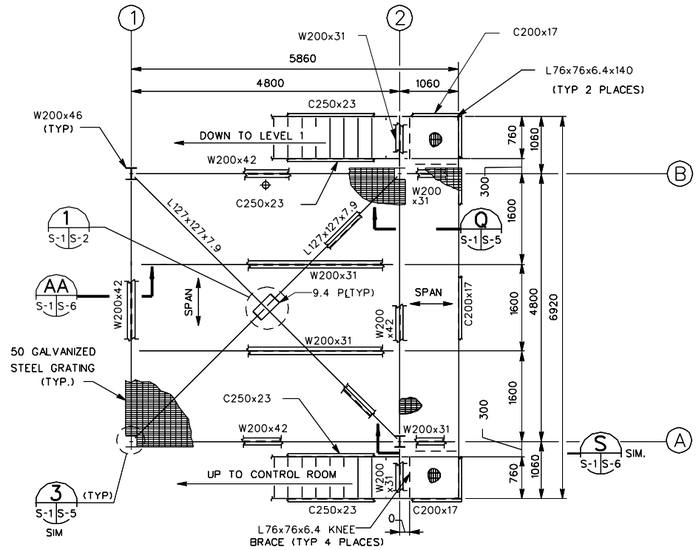
CONTROL ROOM FLOOR FRAMING PLAN

SCALE : N.T.S.



LEVEL 1 FRAMING PLAN

SCALE : N.T.S.



OBSERVATION DECK FRAMING PLAN

SCALE : N.T.S.

DESIGNER NOTES:

1. THE STRUCTURAL DESIGN OF THESE STANDARD BUILDINGS MUST BE SITE ADAPTED BASED ON THE LOCATION AND LATEST DESIGN CODES.
2. VERIFY THE AVAILIBILITY OF METRIC CMU BEFORE SPECIFYING.
3. THE FROST DEPTH OF THE FOOTINGS MUST BE CHECKED.

GENERAL STRUCTURAL NOTES:

1. DESIGN CODES:
   - A. ASCE 7 - 92 — DESIGN LOADS
   - B. AISC-04, 89 — STEEL CONSTRUCTION
   - C. TM 5 809-1, 92 — DESIGN LOADS
   - D. UBC-94 — SEISMIC DESIGN
   - E. ACI 318-89 — CONCRETE CONSTRUCTION
   - F. AISC METRIC PROPERTIES OF STRUCTURAL SHAPES

   DESIGN LOADS:
   - A. ROOF LIVE LOAD — 1 Kpa
   - B. BASIC WIND SPEED — 185 KPH EXPOSURE C
   - C. CONTROL ROOM FLOOR — 5 Kpa
   - D. OBSERVATION DECK, STAIRS AND WALKWAY LIVE LOADS — 5 Kpa
   - E. SEISMIC ZONE — 4

2. FOUNDATIONS:
   FOOTINGS SHOWN ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 100 Kpa
3. MATERIALS AND INSTALLATION REQUIREMENTS:
   - A. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH F'c+28 Mpa IN 28 DAYS U.O.N..
   - B. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE "ACI DETAILING MANUAL" ,ACI 315 ,AND "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ,ACI 318.
   - C. ALL WELDED WIRE FABRIC SHALL CONFORM TO "SPECIFICATIONS FOR WELDED STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT" ,ASTM A185.
   - D. ALL REINFORCING BARS SHALL CONFORM TO "SPECIFICATIONS FOR DEFORMED AND PLAIN STEEL BARS FOR CONCRETE REINFORCEMENT" , ASTM A615 ,GRADE 60.
   - E. ALL ANCHOR BOLTS SHALL CONFORM TO THE "SPECIFICATIONS FOR CARBON STEEL EXTERNALLY THREADED STANDARD FASTENERS" , ASTM A307.
   - F. EXCEPT AS NOTED, ALL STRUCTURAL STEEL OTHER THAN STRUCTURAL TUBING SHALL CONFORM TO "SPECIFICATIONS FOR STRUCTURAL STEEL" , ASTM A36. STRUCTURAL TUBING SHALL CONFORM TO ASTM SPECIFICATION A500, CLASS B.
   - G. STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
   - H. ALL STEEL CONNECTIONS SHALL BE STANDARD AISC UNLESS OTHERWISE NOTED.
   - I. ALL WELDING OF STRUCTURAL STEEL SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" ,AWS D1.1.
   - J. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS , SHALL BE OF THE BEARING TYPE ,AND SHALL BE MADE WITH M20 DIA. HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 UNLESS OTHERWISE SHOWN, AND SHALL INCLUDE LOAD INDICATOR WASHERS.
   - K. INSTALLATION OF HIGH-STRENGTH BOLTS SHALL CONFORM TO AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS" USING ASTM A325 BOLTS.
   - L. COLUMN SPLICES, IF USED, SHALL BE MADE USING FULL PENETRATION WELDS DEVELOPING THE FULL CAPACITY OF THE MEMBER. BEAM SPLICES ARE NOT ALLOWED WITHOUT THE PRIOR APPROVAL OF THE CONTRACTING OFFICER.
   - M. STEEL DECKING FOR THE COMPOSITE METAL FLOOR DECK SHALL BE INSTALLED AND CONFORM TO THE RECOMMENDATIONS OF THE STEEL DECK INSTITUTE AND TO THE FOLLOWING:
     - SECTION MODULUS — SMIN. = 3000mm (.185 IN.^{3})
     - MOMENT OF INERTIA — I MIN. = 68,500mm (.165 IN.^{4})
     - THICKNESS — T MIN. = 22 GAUGE (0.75mm)

     WELD DECK TO EACH SUPPORT BEAM A MINIMUM OF 2 PLACES ON EACH SHEET, SPACING NOT TO EXCEED 300, USING 12 EFFECTIVE DIAMETER PUDDLE WELD. CONNECT SEAMS BETWEEN ADJACENT SHEETS BY WELDING OR BUTTON PUNCHING AT EACH END AND AT 900 MAXIMUM SPACING. MINIMUM LENGTH OF SEAM WELD IS 25.
   - N. FOR M20. DIA. BOLTS UNLESS OTHERWISE SHOWN MINIMUM EDGE DISTANCE SHALL BE 32 AND MINIMUM SPACING SHALL BE 57
   - O. EXPANSION ANCHORS SHALL BE HEAVY DUTY TYPE WITH 64 MINIMUM EMBEDMENT.
   - P. SIDES OF GRADE BEAMS SHALL NOT BE CAST DIRECTLY AGAINST THE GROUND.
4. HAND RAILS SHALL BE PROVIDED ON BOTH SIDES OF STAIRS, AROUND OBSERVATION DECK, AND ON WALKWAY AT CONTROL ROOM LEVEL TO INCLUDE CLOSURES TO COLUMNS FRAMING AND ELSEWHERE AS NECESSARY. DETAILS SHALL BE SIMILAR TO THAT SHOWN IN SECTION AA S-1 S-6 AND ON ARCH. DRAWINGS.
5. USE FULL PENETRATION WELDS ON BOTH FLANGES AND WEB OF STAIR STRINGER SPLICES. USE SPLICES ONLY WHEN NECESSARY.
6. UNLESS OTHERWISE NOTED, WWF SHALL BE PLACE AT THE MID-DEPTH OF THE SLAB.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

US Army Corps of Engineers

Symbol	Description	Date	Approved	Description	Date	Approved

Designed by: REH | Date: 01 APR 98 | Rev.
Dwn by: RLA | Ckd by: REH | Design file no.
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U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA

FORCE XXI/FORCE MODERNIZATION PROGRAM
STANDARD DESIGN

CONTROL TOWER (1 OF 6)
PLANS

Sheet reference number:
S-01
Sheet 1 of 6